(c) No, Sir.

(d) Government has initiated the following actions:

(i) A national workshop was conducted at the NICD in September 2001 for developing surveillance mechanism for pathogens with biological warfare potential including that of anthrax.

(ii) An issue of CD alert (monthly Newsletter of NICD) on bio-terrorism with special reference to anthrax was circulated in October, 2001 to all the concerned health authorities in different States and Union Territories. The issue also covered the guidelines to be followed during biological war/terrorism and effective handling of suspicious envelops/package.

(iii) Guidelines for packaging, transportation of clinical specimens and processing protocol in laboratories were circulated to all the Medical Colleges in the country.

(iv) A meeting on chemical and bio-terrorism was organized on 29th October by the Department of Health which was participated by the Secretaries of Home & Health, Director of Health Services from various States/Union Territories. The representatives from the States informed the preparatory measures taken by them and assured availability of drugs in adequate quantity to tackle any situation.

(v) National Institute for Communicable Diseases, Delhi has been identified as the nodal agency to for investigations of any specimen suspected for anthrax.

(vi) A round the clock control room is functioning at NICD from 19th October, 2001 where suspected envelops/packages are being received for tests.

Introduction of Genes from one Organism to Another

28. SHRI C. O. POULOSE: Will the Minister of HEALTH AND FAMILY WELFARE be pleased to state:

(a) whether Government are aware that the vectors used for introducing genes from one organism to another to make a Genetically Modified Organisms (GMOs) are highly infectious and virulent biological agents;

(b) if so, whether the risks of the use of virulent vectors for engineering novel life form have been assessed; and

(c) if not, how is it possible to create a bio-safety network since their use for bio-terrorism becomes easier as they spread commercially around the world?

THE MINISTER OF HEALTH AND FAMILY WELFARE (DR. C. P. THAKUR): (a) to (c) Genes can be moved from one species to another unrelated species by using the techniques of genetic engineering. A vector made up of a host compatible promoter, a gene of interest and a terminator sequence can be used to insert the transgene into the host by several established transformation techniques. Once a transformed host is made and the transgene is in the right orientation within the chromosome of the host organism, it will express. If the products of the transgene are not toxic to the host, the host would survive. If the products are toxic to unrelated organisms, the transformed host can dangerous as it would multiply under favourable conditions and in the process would produce large quantities of toxins. Therefore, a case by case analysis is required before any genetically modified organism is introduced into the environment. A vector is not necessarily virulent or infectious.

Genetic transformation can take place in nature but the probability of such transformation is extremely low. Moreover, the transformed host has to survive under natural conditions, which is usually found to be extremely difficult.

Indian System of regulation is transparent in dealing with genetically modified organisms. All experiments are to pass through a three tier regulatory process where there is vigilance from the Government at each stage to keep a watch on what is being developed or used locally. The three tier system comprise creation of an Institutional Bio-Safety Committee at the Institute/ Company where research work is carried out or where transgenic materials are developed: the Review Committee on Genetic Manipulation is a Central Committee housed at the Department of Biotechnology, while the Genetic Engineering Approval Committee which is the Statutory Body to deal with all aspects of genetically modified organisms and products thereof is in the Ministry of Environment & Forests. Wherever materials do not enter through the three tier system, the Environment (Protection) Act 1986 can act heavily on the offender as such acts are considered to be criminal in nature and they attract punitive actions.